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ABSTRACT

Two versions (one 'live,' the other by videotape-seminar) of a continuing public health education course on mind affecting drugs were designed and offered in six cities to evaluate the relative effects of the program on knowledge and attitudes of the participants. The 'live' version had been offered four times prior to the study. During the study the course was offered twice more, once 'live' and once by videotape-seminar. In all, 217 adult professionals and semiprofessionals enrolled. Course referenced information and attitude measuring instruments were developed. A before and after tool was designed and used to compare the two groups of current participants enrolled in the two alternative versions. Other participants and sponsors were surveyed by questionnaire and interview for their reactions to the program. Both versions produced reliable increases in knowledge and changes in attitude. Further study of the effects of various program format variables was recommended. (PT)

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FINAL REPORT

AN EVALUATIVE STUDY COMPARING THE COGNITIVE AND ATTITUDINAL EFFECTS  
OF TWO VERSIONS OF AN EDUCATIONAL PROGRAM  
ABOUT MIND-AFFECTING DRUGS

July 1970

Program of Continuing Education in Public Health  
635 Sutter Street  
San Francisco, California

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As in most evaluation studies, the contribution of enrollees and prior participants in responding to the instruments of the study is greatly appreciated. Only through them can we hope to learn.

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## FOREWORD

Since requirements to evaluate publicly funded programs began appearing in the law in the early 1950's, it has become increasingly apparent that effective methods for assessing the effects of ongoing and dynamic programs have not yet been fully developed.

While the number of evaluation studies has dramatically increased during the decade, there appears to be consensus that the outcomes of such studies rarely determine or even significantly influence the planning and allocation of resources. Such researchers as Stufflebeam and Guba (1968), Mann (1965), Stake (1967), and Wittrock (1969) have made this point with respect to programs of education. Etzioni (1968), Hyman and Wright (1967), and others have pointed it out with respect to other programs of social amelioration. For example, after examining 181 evaluation studies selected for their methodological excellence, Mann (1965) concluded, "These findings raise grave doubts as to whether any conclusions can be drawn from such research;" and Campbell (1969) states that "most ameliorative programs end up with no interpretable evaluation."

The reasons for this lack of success are simple enough; finding solutions is more difficult. Evaluation methodology is inadequate for the questions being asked. For the most part, the designs of evaluation studies are inappropriate for the answers being sought. Sensible procedures often are not available for measuring the outcomes of greatest interest. Even if an evaluation study does suggest outcomes of general importance, results typically do not reach appropriate audiences at the appropriate times to be used in decision-making. To study these problems and to develop new methodologies for evaluation research, no less than four university-based research and development centers have been established in this country since 1965.

It is in this context that this evaluation study of the Mind-Affecting Drugs program was undertaken for the Program of Continuing Education in Public Health, San Francisco. The study promised little in the way of proofs, for the state of the methodology precluded the promising of proofs. Our hopes for the study were simply these: to address the questions of most interest to those involved in the planning and implementation of the program; to gather data relevant to those questions; to analyze these data objectively; to report on the program's consequences; and to suggest to the CEPH promising ways of maximizing the effects of future offerings of this program, of similar programs, and of future evaluation research studies.

Los Angeles, California

MJR  
1970

## ABSTRACT

217 adult professionals and semi-professionals enrolled in six separate offerings of a continuing education course on Mind-Affecting Drugs in six cities took part in a study to evaluate the relative effects of two alternative versions of the program on the knowledge and attitudes of participants.

Two existing instructional programs in differing formats were developed and taught by the same two instructors to accomplish the same set of cognitive and attitudinal objectives. One consisted of a series of videotaped lectures presented on five consecutive Monday evenings, each followed by discussions, enrichments, and an all-day wrap-up workshop conducted "live" in the sixth week by one of the instructors. The other version consisted of three consecutive all-day meetings conducted by the two instructors in person with "live" lectures, discussions, enrichments, and interviews with drug offenders.

The "live" version of the program had been offered four times prior to the study. During the study the course was offered twice more, once "live" in Reno, Nevada, and once by "videotape/seminar" in Boise, Idaho. Course-referenced information- and attitude-measuring instruments were developed. A before-after design was used to compare the two groups of current participants enrolled in the two alternative versions; an after only-control group design was used to assess the long term effects on prior participants, who were posttested by mail. Random halves of all groups were used to assess separately the informational and attitudinal aspects of the program. Participants and sponsors were surveyed by questionnaire and interview for their "reactions" to the programs.

Both versions of the program produced reliable increases in knowledge and changes in attitude in the advocated direction as measured by the instruments developed for the study. The Boise (videotape/seminar) group showed reliably greater knowledge gains and attitude changes than the Reno ("live" workshop) group. Prior participants showed reliably greater knowledge and advocated attitudes than their control group counterparts who had not received any version of the program; however, the attitudes of participants a year or more after the program appeared to regress toward former levels. Participants reacted generally favorably to both versions of the program.

The study concludes that modified attitudes may need to be "boosted" subsequent to initial modification by means of follow-up programming in order to maintain behavior at criterion levels. Videotape/seminar formats can, under certain conditions of use, produce cognitive and attitudinal effects on a par with more costly formats. Further study is needed of the effects of various program format variables associated with continuing education programs for adult professionals.



## I. INTRODUCTION

The distinction has been made between studies where the purpose is to evaluate a completed instructional product, such as a film, a course, or an entire curriculum, and those where the purpose is to investigate the effects of specified variable characteristics of such products through controlled variation. (e.g. Hovland, 1949; and Wittrock, 1966).

In both kinds of studies the main emphasis is on the measurement of changes in knowledge, attitudes, and behavior produced by the product. In the first case, however, an evaluation study may be carried out simply to determine the extent to which certain intended outcomes of a product are actually achieved. The desired level of generality requires only that certain procedures be followed to assure the representativeness of the conditions under which the product is tested, and the validity of the instruments used to measure the outcomes. It is important to note that conclusions from such studies of a single product, or of two or more products compared for overall effectiveness, will apply only to that particular product or set of products. Generalization to other products, i.e. to other films, courses, or curricula, however apparently similar these other products may be, have the status of untested hypotheses.

In the second case, however, one or more variable characteristics of importance to the researcher are studied by means of controlled variation in order to assess their effects on the outcomes. Such research, as Hovland (1949) points out, need not have a broad scientific basis, but may be undertaken to accomplish purely practical purposes as when, for example, we seek to determine which of two instructional procedures tends to have a superior effect upon learning. Of importance here is the likelihood that some generalizable principles may be established which will improve our ability to make wise practical decisions in a wide variety of circumstances. The illumination of principles which have the broadest application over the widest range of circumstances has enormous practical value for planning and decision-making, which undoubtedly prompted Kurt Lewin's notable quote, "There is nothing so practical as a good theory."

The Program of Continuing Education in Public Health is clearly aware of the potential practical value of generalizable conclusions about the effects of such instructional procedures as videotaped lectures, seminar discussions, and the like. The CEPH conducts a comprehensive program of educational activities which encompasses a large number of topical fields, often repeating activities numerous times for different

audiences in different locales. The evaluation of instructional procedures and formats conducted in such manner as to allow generalization of the conclusions to a wide variety of courses, programs, and circumstances would have important utilitarian value in the planning and developing of future programs. Thus, while it is appropriate for the CEPH to undertake studies which evaluate the effects of particular products in terms of their overall effects, studies which evaluate the effects of the variable characteristics of their products ought not to be neglected, and should also be conducted whenever feasible, or whenever special opportunities for them occur. It is clear that the long range interest of the CEPH will be served well by an evaluation strategy which seeks answers to both types of questions.

In seeking to evaluate the Mind-Affecting Drugs program, it is clear that the CEPH had an interest in both types of questions. At one level, there was a concern to evaluate the program to determine the extent to which it accomplished its overall objectives. More importantly, however, a new version of the program was about to be tried, one which employed videotaped rather than "live" lectures in a considerably different course format. So at another level, a major concern of the CEPH was to evaluate which of these two versions, if either, was more effective in accomplishing the course objectives. It was clear, however, that their most important concern was to evaluate the relative effectiveness of the two course formats, particularly with respect to the use of videotapes, in such a way as to permit generalization of the conclusions to other courses and products in carrying out the instructional programs of the CEPH.

The first and second of these questions imply relatively straightforward evaluation procedures. What and how much was learned? What attitudes and behavior were changed? Would the same treatments be likely to have the same effects the next time around? Which of the two products was the more effective in producing the desired outcomes? Such research as this belongs to the general class of product-testing studies and can serve the very useful function of guiding the agency in deciding which of a given set of existing alternative products is the most effective and least costly for carrying out specific aspects of its program.

The third question, however, which is usually the most important to the agency as it was in this case, is another matter altogether. When we seek to draw inferences about an entire class of products, procedures, or formats - when we seek to generalize conclusions across some larger population of circumstances - we begin to encounter many inherent problems concerning the generalizability of any specific example of the product to the population of products it is supposed to represent. For example, the question, "Which is the better lecture medium, 'live' or videotaped lectures?" immediately raises further questions such as, "What videotapes?" "What lectures?" "Who is the lecturer?" "Who prepared

the lectures?" "What is the intended audience like?" "How large are the audience groups?" "What subject matter will be taught?" These and many other relevant questions must be raised if this kind of research question is to be answered properly. To generalize across the desired population of circumstances, the study would have to be expanded into an experimental analysis of the many interacting factors which differentiate the two classes of presentations. The difficulty here becomes obvious when we observe that more than twenty-five years of cross-media research and experimentation has not produced generalizable answers to unqualified questions of this sort, i.e. which of two media, two procedures, two formats, etc. is superior for accomplishing instructional goals.

Nevertheless, generalizable answers can be sought if the questions are stated somewhat differently. For example, if we become concerned with questions such as "What variables affect the outcomes of videotaped lecture programs?" "What are the conditions under which videotaped lectures can effectively teach?" "What are the characteristics of an effective videotaped lecture?", then answers are possible. Stated another way, rather than asking "Which procedure, A or B, is superior," we would ask "What are the conditions under which procedure A can be used most effectively; under what conditions, B?"

In the case of the present study, opportunity did not exist to conduct any controlled variable research. The two products of interest already existed and each was to be presented only once during the term of the study. Thus there was no opportunity to study the effects of either program under more than one condition of presentation. In short, opportunity did not exist to vary anything in either case so as to observe the effects of the variation.

Nevertheless, a study designed to compare the effectiveness of two existing alternative programs may still lead an organization to some important generalizations as to the potential effectiveness of a class of procedures or formats. It was felt that the present study would be useful if it successfully demonstrated that the videotaped lecture format could lead to significant levels of behavioral change such as increases in knowledge, and attitudinal shifts in the desired direction. Moreover, even greater usefulness might be obtained if it were shown that this version were in any way superior to the alternative "live" version, or at least not reliably inferior. If any of this could be shown, the CEPH could at least base future decisions involving videotape usage on the knowledge that such presentations can work under certain conditions, even though all the contributing factors may not be well understood.

While the present study could not undertake any controlled variation of factors, the opportunity was presented to hold certain factors constant in assessing the relative effectiveness of the two alternative presentations. Both programs were prepared and conducted by the same instructors to accomplish the same instructional goals. The video-

taped lectures were developed and conducted by these same instructors only after they had conducted them "live" on four prior occasions. The "live" segments of the videotape format were also to be conducted by these same instructors. If differences in the effects of the two programs were observed, a rational basis was provided for ruling out instructor differences, differences of intent or focus, and experiential differences as causal factors.

It should be apparent then, that the study was intended primarily as a comparative test of the effects of these two existing programs on the subject of Mind-Affecting Drugs. As far as its generality is concerned, the results of the study are restricted to conclusions about the relative effectiveness of these two presentations only. As no controlled variation of factors could be introduced, no assessment has been attempted of the factors which appear to differentiate the two alternative classes of presentation of which these might seem to be examples, although some of the more important of these factors are described. Aside from assessing which of these two presentations was associated with the greater amounts of learning and attitudinal change, then, it is hoped that the results might provide an improved basis for hypothesizing about the variable factors which have contributed to the observed differences of effect. In turn, it is hoped this may lead to more precise formulations of the evaluation research needed to improve the quality of program decisions within the CEPH.

In the long term it might be hoped that the CEPH might adopt an evaluation strategy in which systematic variation of selected variables may be studied in the context of a large number of small, product-testing studies similar to this one, but involving many programs presented over time under widely varying circumstances.

## II. DESCRIPTION OF THE STUDY

The study attempted to describe the processes and effects of the Mind-Affecting Drugs program of the CEPH as it was conducted during 1969-1970.

The Mind-Affecting Drugs program provides continuing education for public health professionals in order to improve public health practices with respect to drug users and the general public.

The program is conceived on the premise that professionals lack basic information about mind-affecting drugs and, hence, hold many mistaken beliefs and attitudes about drug uses and drug users which may adversely affect their field practices.

The Program was offered in Tacoma, Honolulu, Long Beach, and San Mateo during 1968-69 and involved a total of 240 participants. These offerings were under the direction of the same two instructors who conducted two additional offerings in the Winter, 1970, the period during which this evaluation was conducted. One of these, given in Boise, Idaho, utilized an entirely new format than the others and consisted of thirteen 25-minute videotaped lectures presented on five consecutive Monday evenings, each followed by discussions, enrichments, and an all-day wrap-up workshop conducted by one of the instructors in person in the sixth week. The videotapes had been prepared by these same instructors in 1969 as part of a public service offering by a local TV station and purportedly covered the same content taught by the instructors in their workshops. The second offering in 1970 followed the format established in the earlier workshops and was given in person by the two instructors in Reno, Nevada. These workshops were conducted during three consecutive all-day meetings and consisted of "live" lectures, discussions, interviews with drug offenders, and enrichments. In all cases the program was represented as intending to cover the same basic content and to modify participant behaviors in the same ways.

The approach to the evaluation assumed that information about the program was sought which would assist the sponsors and the instructors in planning future programs, and modifications of this one. Rather than focusing on the general worth of the program, therefore, the study focuses on the characteristics and consequences of the program, particularly those central to decisions to continue, modify, or discontinue various elements or methods of the program. In addition, the effects of the program are classified into a number of relevant categories to assist in isolating particular areas of strength and weakness in the program. Of particular concern was the effectiveness of the Boise treatment as evidence of the potential effectiveness of the future offerings of the course utilizing the videotape/seminar format.

In identifying aspects of the program on which to focus attention, three important considerations served as guidelines: what aspects were most important to the people affected by the program? what aspects could realistically be changed as a result of the evaluation? and what sources of data would be available and feasible to study? During the design phases of the study, information pertinent to these considerations was gathered from CEPH staff, the instructors, local program coordinators, prior participants in the program, and documents relevant to the program.

From this preliminary investigation it was decided that the evaluation should respond to several general questions. One question, for example, should concern what attitudes and information participants bring to the program and what changes in these factors occur during the course of the program. Another question should concern the differential effects on learning and attitudinal changes resulting from the two versions of the presentation. Other questions should include consideration of program processes, short-term vs. long-term effects, face validity of the program, and characteristics of enrollees.

Within this general framework, then, the evaluation of the Mind-Affecting Drugs program was designed to accomplish four major objectives:

1. An assessment of the comparative effects of the two alternative presentations in terms of cognitive and attitudinal changes.
2. An assessment of the long-term and short-term effects of the 3-day workshops in terms of cognitive and attitudinal changes.
3. A description of demographic and other characteristics of those who enroll, including an analysis of their reactions to the programs.
4. A description of the variable characteristics which differentiate the two alternative presentations and hypotheses regarding their potential effects on the observed outcomes.



### III. GENERAL DESCRIPTION OF DESIGN AND PROCEDURE

One essential method of comparison employed in the study involved the two predetermined participant groups, one in Boise and the other in Reno. A before-after design was adopted so that changes in knowledge and attitudes might be analyzed with respect to the initial states of knowledge and attitude of the participants in these two groups.

For these comparisons, a random half of each group was given an Information-About-Drugs test prior to the start of instruction, and the same individuals were given the same test a second time following the instructional program. The other random half of each group was given an Attitudes-Toward-Drugs inventory prior to the instructional treatment, and the same individuals were given the same inventory a second time following the treatment. Both groups were too small to provide for control groups tested after-only. Thus there is no formal way to assess the effect of the pretest on posttest results for either group. While this is not expected to bias the outcomes in favor of either of the groups, there was also no formal way to assess the effects of pretest/treatment interactions which could bias the results in this way.

Both the Information and Attitude test scores were matched to individuals. In this way, scores could be examined in terms of individual changes between pretest and posttest. Also, items could be analyzed in terms of the proportion of participants who change their selections of various alternatives between the pre and posttest.

Another essential method of comparison involved surveying a sample of the prior participants in the program. The names and addresses of all participants in the four prior offerings of the program were obtained and random samples of this population were asked to complete either the Information-About-Drugs test or the Attitudes-Towards-Drugs inventory. As no pretesting had been conducted on this group prior to their participation in the program, an after only-control group design was adopted for this comparison. The combined Boise-Reno pretestees were used as an untreated control group for this phase of the study.

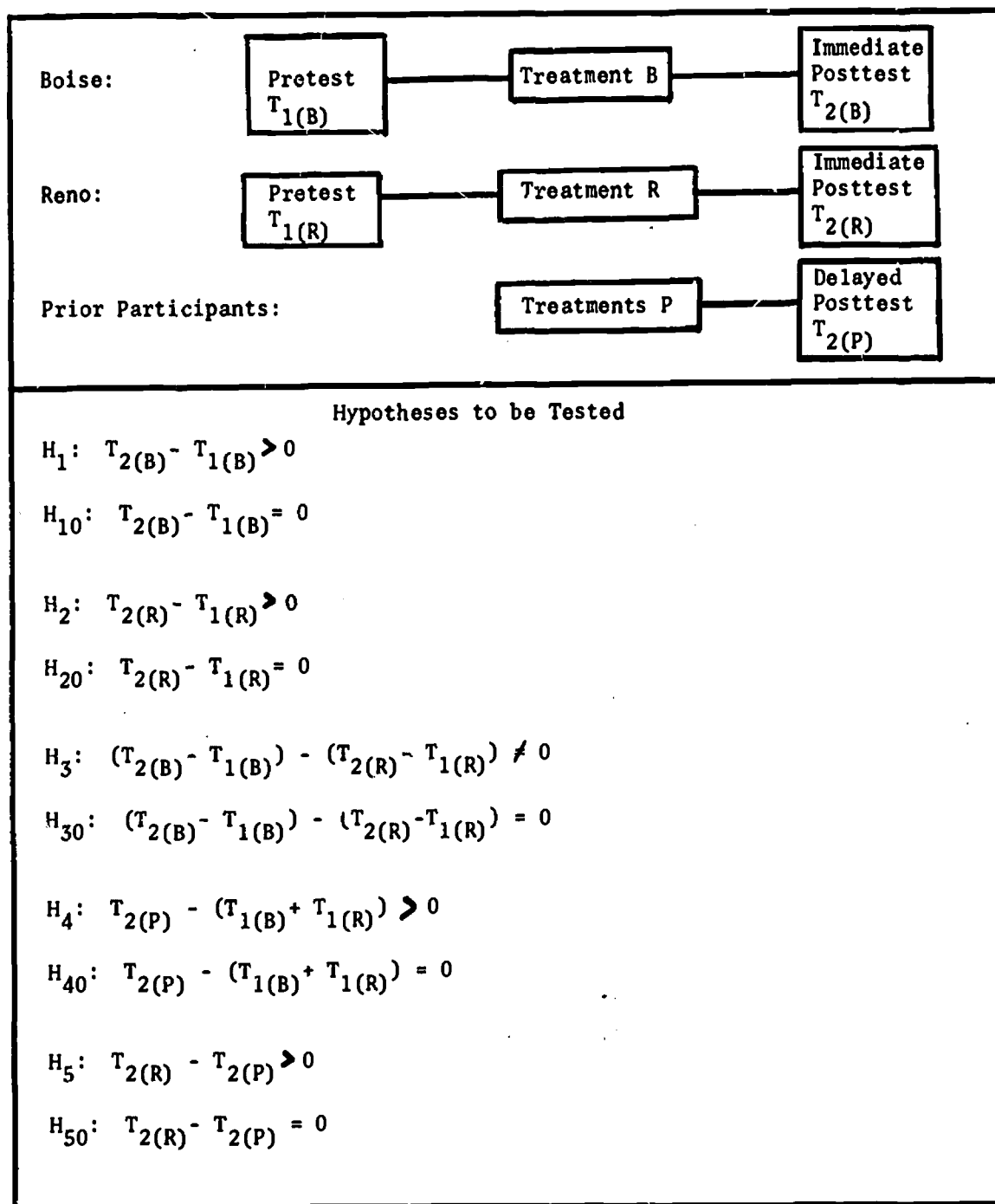
The models for these comparisons are diagrammed in Figure 1 below.

In assessing the cognitive and attitudinal effects of the program then, major hypotheses were tested relative to the following questions:

1. Did the participants change as a consequence of the program?
2. Was the amount of change different for the different treatment groups?
3. Is there evidence of long-term change in participant behavior following the program?
4. Is there evidence of long-term retention of change effects?

Figure I

BASIC COMPARISONS AND HYPOTHESES  
ON INFORMATION AND ATTITUDE MEASURES





#### IV. TREATMENT VARIABLES

The participants in the Reno workshop received instruction in essentially the same format as the four prior offerings of the program. Briefly, there were three all-day meetings of the group held on consecutive days from approximately 9:00 A.M. to 5:00 P.M. On the second evening an enrichment activity was presented consisting of a son et luminere show featuring music, light and art characteristic of the drug sub-culture. The major components of the all-day meetings were (1) lectures conducted in person by the two CEPH instructors, (2) buzz groups led by "locals" with the two CEPH instructors rotating visits to the various discussion groups, (3) personal interviews and interactions with youthful and older drug offenders, and (4) presentation of drug education films.

The participants in the Boise program received instruction in a substantially different format. The year before, the two CEPH instructors, in conjunction with a public service TV program (not shown in Boise or Reno), had prepared a series of thirteen 25-minute videotaped lectures on the same content as they covered in their workshops. These thirteen videotaped lectures were presented to the Boise participants at five consecutive weekly meetings which lasted approximately two hours each. Following the taped lectures, a local discussion leader moderated discussions by the participants. An all-day wrap-up session was conducted the sixth week with one of the two CEPH instructors participating in person. The major components of the weekly meetings in Boise consisted of (1) the videotaped lectures, and (2) seminar discussions moderated by "locals". The final all-day workshop consisted of (3) interactions with one of the two CEPH instructors in person, and (4) presentation of drug education films.

In general, the content and objectives of the two presentations were essentially the same; in many respects, however, the treatments differed. The following list identifies and describes what appear to be the major variable characteristics which differentiated the two programs as they were presented in Boise and Reno:

1. Amount of Instruction: The Reno workshop presented a greater gross amount of instruction, involving participants in approximately 24 hours of instructional activity as compared to 18 hours at Boise.
2. Modes of Instruction: The major difference here was the presentation of lecture material "live" at Reno and videotaped at Boise. In addition, personal interaction with both CEPH instructors was available during most of the 24 instructional hours at Reno, but only with one of the instructors for about 8 hours at Boise. Interaction with drug offenders was commonly available at Reno, but not at all at Boise.

3. Content of Instruction: While both versions purported to cover the same content, a wide variety of content differences may be observed to occur between any two offerings of a course. Different questions may arise from the floor and be answered, to give one obvious example of how this occurs. In this case, no formal content analysis of the two versions was conducted, but simple inspection was enough to reveal that many content details differed in small respects, although the major objectives of the course were the same in both cases. The son et lumiere show was an additional content feature presented in Reno, but not Boise, as were the statements of a number of drug offenders who participated at Reno.
4. Term of Instruction: The Reno workshop was presented during a concentrated 3-day period, with meetings running 3-4 hours between breaks. The Boise program was spaced out over a six-week period, with most meetings running for shorter intervals. This "massed" vs. "spaced" instruction is an important differentiating characteristic of these two programs.

As it has been discussed above, while these treatment variables may have systematic effects upon the dependent variables of interest in the Continuing Education program, the conditions of the present study did not permit their controlled variation. The nature of their interaction and effects, therefore, could not be ascertained formally within the framework of this study.

Other variables may affect the validity of a study, however, and one in particular should be made explicit at this point. An important source of bias in any experimental comparison is the potential effect which may accrue from preexisting systematic differences in the samples of learners participating in each treatment group. The formal procedure for controlling selection bias is to randomize the assignment of subjects to treatments, a procedure not feasible in this or in most evaluation studies of ongoing programs. Without the formal procedure, however, the possibility will remain that unknown selection factors may be operating to bias the outcomes in favor of one of the groups. Was one of the groups on the whole brighter, more motivated, better educated than the other? Was one group systematically different in any way which might bias the outcomes in a particular direction? In interpreting the results of this study, what do we do with the knowledge that some of the participants paid their own registration fees, and some of the participants did not? Unfortunately, any differences of effect found in this study may be attributed to selection bias as easily as to treatment differences, by precisely the same logical analysis. The only alternative in such studies as these is to provide some rational basis for arguing the comparability of groups. Our before-after design helps to analyze effects as a function of entering states of knowledge and attitude

so we can take into account this important variable in our analysis. Demographic information may help also to argue that, at least on the traits examined, our participants do not appear to be significantly different. These alternatives also were pursued in this study to the extent feasible and are discussed in Section VII, Sources of Invalidity in Experimental Comparisons. In the discussion which follows it will be shown that systematic selection bias cannot be ruled out in identifying the variables which may have affected outcomes of this study.

## V. COGNITIVE EFFECTS

### Development and Administration of an Information-About-Drugs Instrument

One of the problems encountered in the study was the development of instruments to measure learning of the information specifically taught in the program. An appropriate criterion-referenced achievement test for this program did not exist, so it was necessary within the time-frame of the study to develop and employ such an instrument in the same operations.

To accomplish this, a pool of 100 factual-information items were developed based upon the course content as it was represented in the videotaped lectures and various materials used in conjunction with the workshops. Face validity of these items was assessed by means of reviews by the CEPH instructors. This 100-item test was administered to a sample of the Boise participants prior to the start of instruction. An item analysis was performed following the pretest. On the basis of this analysis, 39 items were eliminated from the pool as being too easy, confusing, or invalid in the view of the instructors. All of the remaining 61 items were sufficiently difficult that no more than 75% of the enrollees answered them correctly on the pretest. The items eliminated because most of the enrollees were able to answer them correctly on the pretest appear in Appendix B. The remaining 61 items were then used in all subsequent administrations of the test.

Following the final administration of the posttests a second item analysis was performed to identify those items which were positively correlated with the total test, i.e. items which were answered correctly most often by those who scored high on the test, and least often by those who scored low on the test. This analysis for item discrimination led to a final reduction of the pool to 40 items. These 40 items and the responses of participants to only these 40 items, were used in computing the scores which entered into the analysis of the Information-About-Drugs instrument.

The test used to measure informational learning from the course consisted, then, of 40 multiple-choice questions, which required participants to select the best alternative in each case and mark their choice on a separate answer sheet. Appendix A is a copy of the 40-item test used in the analysis.

From an early analysis of the program's general objectives, the researchers classified the informational objectives of the program into six major topical categories. The test was intended to sample the participants' knowledge in each of these categories separately

in order to pinpoint particular areas of strength and weakness associated with each version of the program. Each of the categories is described in Table 1 below together with the number of test items sampling in each category occurring in the 40-item test.

The tests were administered before instruction, began in Boise and Reno, and again after instruction had concluded.<sup>1</sup> The same test was also administered to a sample of prior participants by means of a mail survey. In all cases, respondents were asked not to identify themselves by name, but by a unique identifying number (the last four digits of their home telephone number) to allow matching of posttests, pretests, and other instruments.

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1. Circumstances in both Boise and Reno led to the administration of the posttest somewhat prior to the conclusion of instruction. The researchers feel this did not operate to bias the results in favor of either group.

### Overall Effectiveness of the Instructional Programs

Figure II summarizes the overall relative effectiveness of the two alternative presentations studied by showing the average percentage of correct answers obtained by participants on both pre and posttests. The percentage of correct answers obtained by a sample of prior participants a year or more after their exposure to "live" workshops is also shown. This is compared to the average percentage of correct pretest responses obtained by the Boise and Reno groups combined to provide a control group base of comparison.

The data show reliable evidence of learning from both presentations<sub>1</sub> as they were presented in Boise and Reno at the .001 level of confidence. This indicated less than one chance in a thousand that such pre-posttest differences would be obtained by chance in the predicted direction if in fact there were no difference.

In addition, the data also show reliable evidence that the Boise (videotape/seminar) participants learned more than the<sub>2</sub> Reno ("live" workshop) participants at the .05 level of confidence.

The measure of effectiveness used in this analysis was an "effectiveness score" (E.S.) which expresses the observed increase in the number of correct responses for each individual in relation to the maximum increase possible for that individual. The use of this type of effectiveness score as a baseline for the measurement of percentage change has been advanced by Hovland (1949) as a way of overcoming some of the ceiling effects resulting from other percentage change measures. The effectiveness score for each individual is expressed by the following:

$$E.S. = \frac{S_2 - S_1}{T - S_1}$$

where

- $S_1$  = the number of correct responses on the pretest  
 $S_2$  = the number of correct responses on the posttest  
 $T$  = the total possible number of correct responses

- 
1. The Wilcoxon Matched-Pair Signed-Ranks procedure was used for both pre-posttest comparisons. A one-tail test was used as the direction of the difference was predicted on the basis of course intent.
  2. t-tests were used for this and all other comparisons unless otherwise noted. A two-tail test was used here as there was no basis for predicting which if either of the treatments might be superior.

Figure II

AVERAGE PERCENTAGE OF CORRECT RESPONSES ON PRE AND POST INFORMATION TESTS  
OBTAINED BY PARTICIPANTS IN EACH GROUP

	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
Boise Group (Videotape- Seminar)	<div> <div>Pretest</div> <div>42.5%</div> <div>Immediate Posttest</div> </div>										
	N=13										
	66.7%										
Reno Group ("Live" Work- shop)	<div> <div>Pretest</div> <div>48.0%</div> <div>Immediate Posttest</div> </div>										
	N=26										
	63.8%										
Prior Participants ("Live" Work- shops)	<div> <div>Average Boise-Reno Pretest as Control</div> <div>46.2%</div> <div>Delayed Posttest</div> </div>										
	N <sub>pretest</sub> = 39										
	N <sub>posttest</sub> = 75										
	63.2%										

It will be seen that the E.S. expresses the ratio of actual gain to possible gain for each individual, or the proportion learned of what was not known.

To ascertain if there might be an observable systematic difference in the states of entering knowledge of the two treatment groups prior to instruction, the pretest scores of both groups were compared. The data show no reliable evidence of pretest differences between the two groups.

It seems reasonable to conclude from the above that the Boise group learned more information about drugs between pre and posttests than the Reno group, and no basis exists for supposing that different states of knowledge predated the treatments.

The data also show a reliable difference ( $P < .001$ ) between the delayed posttest scores obtained by a sample of prior participants over a year after their participation in the program and the pretest scores obtained by the combined Boise-Reno pretest sample. To the extent that the Boise-Reno participants may be regarded as representative of a random sample of the total population of enrollees in this program, the data suggest that a significant proportion of the information learned from the workshop is retained over time. A comparison of the immediate posttest scores obtained by the Reno group, and the delayed posttest scores obtained by prior participants in "live" workshops failed to show any reliable differences. These data are consistent with the previous finding, suggesting that no significant proportion of information learned in the workshop is forgotten over time.



### Comparing Effectiveness for Different Categories of Information

The relative effectiveness of the two presentations in conveying material was compared for each of the six main topical classifications described below in Table 1. Table 2 then shows the average effectiveness scores on these subdivisions of the test for participants in each of the instructional groups. For this analysis, each item was assigned an effectiveness score according to a procedure similar to that described earlier. In this case, each item was assigned a score which expressed the increase in the number of participants checking the correct response divided by the maximum increase possible for that item. The effectiveness of each treatment was then expressed as the average effectiveness score of the items comprising each subtest.

These data show no statistically reliable superiority for either group on four of the six content categories. The mean difference of 36.38% effectiveness in favor of the Boise group on the Category II subtest, Definitions, is reliable at approximately the .07 probability level (two-tail). The mean difference of 18.64% effectiveness in favor of the Boise group on the Category I subtest, Effects, is reliable at approximately the .15 probability level (two-tail).

These probability levels indicate that the same results might occur by chance only seven times and fifteen times in 100 respectively if in fact there were no differences. In view of the small sizes of both the samples and the subtests, findings should be interpreted as suggesting that systematic differences between the treatments may have been obtained in these content areas.

Table 1  
CATEGORIES OF INFORMATION SAMPLED IN  
INFORMATION-ABOUT-DRUGS TEST

Category	Category of Information	No. of Items
I	Effects of Various Drugs	11
II	Colloquial and Technical Definitions	7
III	Legal and Social Status of Various Drugs	4
IV	Treatment and Prevention Alternatives	8
V	Historical and Social Backgrounds	7
VI	Other Miscellaneous Information	3

**Table 2**  
**AVERAGE EFFECTIVENESS SCORES**  
**OF CATEGORICAL SUBTESTS**

	Content Category					
	I (11 Items)	II (7 Items)	III (4 Items)	IV (8 Items)	V (7 Items)	VI (3 Items)
Boise (N=13)	55.81%	82.00%	42.75%	25.75%	28.57%	53.67%
Reno (N=26)	37.17%	39.67%	28.50%	27.75%	26.71%	49.67%
P=	P=.15	P<.07	d.n.r.**	d.n.r.	d.n.r.	d.n.r.

\* Average percentage of those failing these items on the pretest who passed them on the posttest, i.e. average percentage of possible pretest-posttest gain.

\*\* Difference not reliable

## VI. ATTITUDINAL EFFECTS

### Development of an Attitudes-Toward-Drugs Instrument

As with the Information-About-Drugs test, it was necessary to develop and employ an Attitudes-Toward-Drugs instrument in the same operations. A method similar to the one used to revise the initial version of the information test was used to revise the attitude scale.

A pool of 67 Likert-type items was developed using a 7-point agree-disagree scale to assess attitudes toward statements based upon the attitudinal objectives specified by the instructors and related course materials. The 67-item scale was administered to samples of the Boise and Reno participants prior to the start of instruction in each location, and to the same participants again following the instructional program. An item-analysis was performed following all administrations of the scale. On the basis of this analysis, 27 items were eliminated from the pool which produced little appreciable average pre-posttest difference at either location. The final version of the scale consisted of the remaining 40 items, and the responses of participants to only these 40 items were used to compute the scores which entered into the analysis of attitudinal effects. Appendix E is a copy of the 67-item scale administered in all locations, and identifies the 40 "kept" and 27 "dropped" items.

All 67 items were used for all testing sessions in the study because of the possibility that responses to "dropped" items might interact with responses to "kept" items in the case of an attitude-measuring scale. By administering all items to all groups, the effects of such interactions could be held constant between the groups compared. Subsequent users of the 40-item scale should be cautioned, therefore, against comparing future scores on the scale with the scores reported herein.

From an early analysis of the program's general objectives, the researchers classified the attitudinal objectives into ten major categories. The scale was intended to sample the participants' attitudes in each of these categories in order to identify areas of strength and weakness associated with each version of the program. Table 3 below describes each of these categories, together with the number of scale items sampling in each of the categories on the final 40-item scale.

In addition to administering the scale in Boise and Reno both before and after instruction, the same scale was administered to a sample of prior participants by means of a mail survey.

Table 3

CATEGORIES OF ATTITUDES SAMPLED BY THE ATTITUDES-TOWARD-DRUGS SCALE  
SHOWING NUMBER OF ITEMS AND "KEY" ITEMS IN EACH CATEGORY

	Category	No. of items on scale	"Key" item
	Participants will:		
1.	Feel they will get along better and communicate better with drug users	6	29
2.	Feel they are more aware of what's going on in the drug scene	3	34
3.	Feel better able to differentiate among user types, eg. addicts vs. habituals, users of mild vs. harder drugs, etc.	3	28
4.	View drug use as a complex social phenomenon rather than simply a legal problem	3	10
5.	Will have less fear of users	3	6
6.	Will be less likely to feel that drug use is criminal behavior	6	65
7.	Will recognize that we are all drug users	6	67
8.	Will recognize that drugs have a positive value	3	37
9.	Will recognize the need for integrated treatment programs	3	52
10.	Will feel that use of marijuana does not inevitable lead to use of stronger drugs	3	30

### Overall Effectiveness of the Program in Modifying Attitudes

Figure III summarizes the overall relative effectiveness of the two alternative presentations by showing the average percentage of possible scores obtained by participants on both pre and posttests. The percentage of possible scores obtained by a sample of prior participants a year or more after their exposure to the "live workshop" version is also shown. This is compared to the average percentage of possible scores obtained by the combined Reno-Boise groups on the pretests.<sup>1</sup>

The data show reliable evidence of pre-posttest differences in attitudinal scale scores in the direction advocated by the instructors following both alternative presentations as they were presented at Boise and Reno at the  $P = .001$  level of confidence.<sup>2</sup> However, the data show no reliable evidence that either group was superior in this respect.<sup>3</sup> In other words, while both groups showed reliable gains in attitudes advocated by the instructors, neither group was shown to be more effective than the other in changing overall attitudes toward drugs as measured by this scale.

As in the analysis of learning scores, the measure of effectiveness used was an effectiveness score (E.S.) which expressed the observed change in score as a function of the maximum change possible for each individual. As there were 40 items in the scale, each with seven possible points, the maximum obtainable score for any individual was  $40 \times 7 = 280$  points. Thus an individual who obtained a pretest score of 100 points and a posttest score of 190 points was assigned an E.S. of

$$E.S. = \frac{190 - 100}{280 - 100} = .50$$

In other words, 50% of the maximum possible increase for that individual was obtained. (See discussion of E.S. on page 14 above)

To ascertain if there might be a systematic difference in the states of entering attitudes toward drugs, the pretest scores of both groups were compared. The data show no reliable evidence of pretest differences between the two groups.

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<sup>1</sup> Some items were keyed for negative change; some for positive. For the analysis the polarity of all items was adjusted so that the higher end of the scale represented the direction of change advocated by the instructors. Thus an increased score represents "a change in the advocated direction" in all discussion herein.

<sup>2</sup> The Wilcoxon Matched-Pair Signed-Ranks procedure was used for both pre-posttest comparisons. A one-tail test was used since the direction of change was predicted on the basis of course content.

<sup>3</sup> t-tests were used for this and all subsequent comparisons unless otherwise noted.

**Figure III**

**AVERAGE PERCENTAGE OF POSSIBLE SCORES OBTAINED  
ON PRE AND POST ATTITUDINAL SCALES\***

[illegible]

\* Higher percentage scores represent direction advocated by the program

Another way of considering the effects of the treatments on attitudinal responses is to examine the proportion of each group which equals or exceeds some criterion measure. In this study, the Attitudes-Toward-Drugs scale was administered to each of the instructors to obtain measures of their attitudes toward the statements in the scale. Their responses to each of the items were averaged to obtain a criterion level of response for each item. Appendix H shows the average level obtained by the instructors on each item, and the proportion of each group which equalled or exceeded these criteria on the pre and posttests.

On item 26, for example, the average response of the instructors was 6.3 on the 7-point agree-disagree scale. 46% of the Boise group equalled or exceeded this criterion on the pretest, and this proportion increased to 63% on the posttest. In Reno, 67% equalled or exceeded this criterion on the pretest, but this proportion decreased to 54% on the posttest.

Examined in this way, it can be observed that the proportion achieving criterion increased on 33 items at Boise, and on only 18 items at Reno (see Table 4 below). Comparing both groups on an item by item basis in this way, using Appendix H, it can be observed that the Boise group was superior to the Reno group on 19 items, while the Reno group was superior on only six. There was no directional superiority for either group on 15 of the items. Applying a sign test to these data shows that the proportion achieving criterion was affected on significantly more items at Boise than at Reno ( $P = .014$ ). Thus, if each item is viewed as an independent measure, it would appear that the Boise treatment was more effective than the Reno treatment with respect to the proportions reaching criterion on a significantly greater number of measures.

The data also show a reliable difference ( $P < .001$ , 1-tail) between the delayed posttest scores on the attitude scale obtained from a sample of prior participants over a year after their participation in the program and the pretest scores obtained by the combined Reno-Boise sample. As in the analysis of cognitive effects, these data suggest that a significant proportion of the changed attitudinal responses learned in the workshops is retained over time. Moreover, it should be noted that this finding tends to rule out pretest effects as a primary determining factor in accounting for the significantly higher posttest scores, since the prior participants were not pretested.

A comparison of the immediate posttest scores obtained from the Reno group, and the delayed posttest scores obtained by the prior participants showed a reliable ( $P < .05$ , 1-tail) in favor of the immediate posttest scores. These data suggest that while a significant proportion of the changed attitudinal responses is retained, a significant proportion is nevertheless extinguished over time.



Table 4

NUMBER OF ITEMS SHOWING CHANGES IN PROPORTION REACHING CRITERION  
BETWEEN PRE AND POST ATTITUDE SCALES

	No. of items showing INCREASE in proportions reaching criterion	No. of items showing NO CHANGE in proportions reaching criterion	No. of items showing DECREASE in proportions reaching criterion
Boise	33	3	4
Reno	18	21	1

### Comparing Effectiveness on "Key" Attitudinal Items

The relative effectiveness of the two presentations in modifying specific attitudes was compared on ten "key" items drawn from the major attitudinal categories described above in Table 3. Figure IV shows the differences between average pre and posttest scores for each of the treatment groups on each of the "key" items.

The data in Figure IV summarize the average percentages of possible score obtained for each item on both pre and posttests. The figure also records the statistical reliability associated with the pre-posttest gains for each group on each of the "key" items. For this analysis, the pre and posttest responses of each individual on the 7-point agree-disagree scale were compared for each item, and an E.S. was assigned to each individual reflecting the change in his response to each item according to the procedure described earlier.

Table 5 compares the gains achieved by each of the treatment groups on the ten "key" items in terms of the proportion of possible gain which was actually achieved by each of the groups on each of the items. It can be seen that no statistically reliable superiority for either group can be shown on eight of the ten "key" items. The mean difference of 18% effectiveness in favor of the Reno group on item 29, is reliable at approximately the  $P = .08$  level of confidence. The mean difference of 50% effectiveness in favor of the Reno group on item 37 is highly reliable, allowing rejection of the null hypothesis at the  $P < .01$  level of confidence. Thus, on only this one "key" item was a highly reliable difference shown favoring one of the treatment groups. The Reno group apparently felt more strongly than the Boise group after the program that "Drugs help many people live more satisfying lives."

**Figure IV**

**AVERAGE PERCENT OF POSSIBLE SCALE SCORE VALUES  
ON PRE AND POSTTESTS OF "KEY" ITEMS  
FOR ALL GROUPS**

Item and Objective	Percent of possible scale values*											
	Pretest						Posttest gain					
	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	
Item 6: I'm afraid of people who smoke marijuana.  Objective: S's will have less fear of drug users.	Boise	83.5%										89.0%** d.n.r.
	Reno	72.0%										88.7% P<.005
	Prior Participants	75.2%										84.0% d.n.r.
Item 10: Society's fear of drugs is hampering proper treatment for those who need it.  Objective: S's will view drug use as a complex social phenomenon rather than simply a legal problem	Boise	69.0%										91.2% P<.05
	Reno	73.2%										86.3% P<.005
	Prior Participants	70.0%										84.6% P<.005
Item 28: Dosage and type of drug are crucial factors in distinguishing types of users.  Objective: S's will feel better able to differentiate among user types	Boise	69.2%										82.4% d.n.r.
	Reno	67.2%										83.3% P<.005
	Prior Participants	68.0%										86.3% P<.005
Item 29: I understand people who use drugs  Objective: S's will feel they will get along better and communicate better with drug users	Boise	40.7%										50.5% d.n.r.
	Reno	36.0%										58.4% P<.005
	Prior Participants	37.7%										57.0% P<.01

\* The percentage represents the average percent of possible score on these items.

\*\*Pre-Posttest gains are statistically reliable at levels stated unless otherwise noted as d.n.r. (difference not reliable). Note: small N at Boise reduced sensitivity of statistical comparisons.

Figure IV (Cont'd)

Item and Objective	Percent of possible scale values										
	Pretest					Posttest gain					
	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
Item 30: A person can take some illegal drugs periodically without getting hooked.  Objective: S's will recognize that use of marijuana does not inevitably lead to use of stronger drugs	Boise	74.7%							84.5%		
	Reno	71.4%							86.3%		
	Prior Participants	72.6%							79.7%		
									d.n.r.		
Item 34: I'm aware of what's happening with drugs.  Objective: S's will feel they are more aware of what is going on in the drug scene	Boise	52.7%							71.4%		
	Reno	58.3%							77.3%		
	Prior Participants	56.4%							76.1%		
									P<.05		
Item 37: Drugs help many people live more satisfying lives.  Objective: S's will recognize that drugs have a positive value.	Boise	63.7%							64.8%		
	Reno	44.0%							73.2%		
	Prior Participants	51.0%							62.1%		
									P<.05		
Item 52: There are methods of treatment available which minimize the danger of criminality and yet allow the person to maintain contact with society  Objective: S's will recognize the need for integrated treatment programs	Boise	71.4%							89.0%		
	Reno	67.8%							88.1%		
	Prior Participants	69.0%							88.6%		
									P<.01		

Figure IV (Cont'd)

Item and Objective	Percent of possible scale values										
	Pretest					Posttest gain					
	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
Item 65: Marijuana and LSD should be legalized  Objective: S's will be less likely to feel that drug use is criminal behavior	Boise	17.6%									
	Reno	16.1%									
	Prior Participants	16.7%									
Item 67: Cigarette smokers, marijuana smokers, coffee drinkers, and diet pill takers are all drug users.  Objective: S's will recognize that we are all drug users	Boise						81.3%				
	Reno						79.1%				
	Prior Participants						80.0%				

Table 5

COMPARISON OF GAINS ACHIEVED BY TWO  
TREATMENT GROUPS ON TEN KEY ITEMS \*

Item	Percent of Possible Gain Actually Achieved		p**
	Boise	Reno	
6	.33	.60	d.n.r.
10	.71	.49	d.n.r.
28	.43	.49	d.n.r.
29	.17	.35	< .10
30	.39	.52	d.n.r.
34	.40	.47	d.n.r.
37	.03	.53	< .01
52	.62	.63	d.n.r.
65	.31	.16	d.n.r.
67	.48	.74	d.n.r.

\* These data show the percentage of possible pre-posttest gain actually achieved on each item by the aggregate of each treatment group.

\*\* 2-tail probabilities are shown where  $H_0$  can be rejected at  $P \leq .10$  level of confidence. Where  $H_0$  cannot be rejected at this level, d.n.r. (difference not reliable) is shown.

## VII. SOURCES OF INVALIDITY IN EXPERIMENTAL COMPARISONS

In considering the validity of the foregoing experimental comparisons the question should be asked, "what variables, other than the experimental treatments, may have produced the observed changes in the dependent variables? In what ways is the generalizability of the findings limited?

As it was discussed earlier, the framework of this study did not permit systematic variation of the experimental variables and control of those extraneous to the desired comparisons. As a consequence, it is not possible to rule out the effects of a considerable number of extraneous variables on the dependent measures, particularly with respect to systematic differences between the comparison groups. Two of these variables in particular are discussed below because the probability of their influence on the observed effects is high.

### Comparability of Comparison Groups (Selection Biases)

As it was pointed out earlier, participants could not be randomly assigned to treatments. Therefore, an analysis of the treatment groups was needed to assess the probability that the comparison groups might have been randomly drawn samples from the same populations. In the absence of evidence to the contrary, the argument would be strengthened that differences in their performances might be attributed to differences in the treatments.

Based upon available demographic information about the participants, individuals in each group were classified on the basis of occupational group, professional level, and age. Table 6 shows the frequency of occurrence of various occupations in the treatment groups. Chi-square analysis of these frequencies reveals reliable systematic differences in the composition of the comparison groups ( $P < .01$ ), with respect to occupations.

Table 7 shows the frequency of occurrence of various professional levels in the treatment groups as classified by an occupational rating scheme devised by the research team. Chi-square analysis of these frequencies also reveals reliable systematic differences in the composition of the comparison groups ( $P < .01$ ) with respect to professional level.

Table 8 shows the frequency of occurrence of various ages among participants in the treatment groups. Chi-square analysis of these frequencies reveals systematic differences in the age composition of the comparison groups ( $P < .01$ ) although no reliable difference was found between the combined Boise-Reno group and the Prior Participant group on this variable.

Table 6

FREQUENCY OF VARIOUS OCCUPATIONS IN TREATMENT GROUPS

	Boise	Reno	Prior Participants
Medical and Public Health	4	25	90
Other Social Services	6	10	25
Education	4	12	7
Law Enforcement & other Occupations	17	3	7

Table 7.

FREQUENCY OF VARIOUS PROFESSIONAL LEVELS IN TREATMENT GROUPS

	Boise	Reno	Prior Participants
Professional	3	4	32
Semi-Professional	9	19	26
Clerical-Technical	18	28	71



Table 8

FREQUENCY OF VARIOUS AGES IN TREATMENT GROUPS

	Boise	Reno	Prior Participants
55-65	5	5	22
45-54	6	12	41
35-44	5	14	37
25-34	6	11	37
Under 25	1	8	3

Correlational analysis, however, failed to reveal any significant relationship between scores on either information tests or attitude scales and any of the above variables. Nevertheless, from the above analysis we conclude that the comparison groups should not be regarded as random samples drawn from the same population and that systematic selection bias cannot be ruled out as contributing to the differences in outcomes between comparison groups.

### Interactive and Reactive Effects

Several potential interaction effects should also be considered which will lead to some caution in generalizing these findings to predict the outcomes of future replications of these same treatments.

First, it should be noted that the effects of taking the pretest on posttest scores is not formally controlled. Even though the Prior Participant group was not pretested and still obtained significantly higher scores than the combined Boise-Reno pretest group, the comparison involves non-comparable groups. After all, the Prior Participants were posttested a year or more after receiving their treatment, so that their higher scores might have resulted from the interaction of the treatment and subsequent experience, rather than from the treatment alone - more commonly called a "sleeping effect." We have no way of knowing how a non-pretested group would perform on an immediate posttest following the treatment.

It should also be observed that the design provides no way to control for the possible interaction of selection and any of the variables which differentiate the two treatments. For example, the motivational patterns of the two groups may differ, and it might turn out that a six-week long course may be more effective than a three-day workshop for more highly motivated persons.

Finally, it should also be noted that the reactive effects of the treatment are not controlled in this study - the celebrated Hawthorne Effect. To what extent can the superiority of the Boise group be attributed to their awareness of being "guinea pigs" in a study of teaching by television? It is difficult to say, of course. In fact, one of the common difficulties associated with cross-media comparisons such as this one is that the differential effects of the more novel treatment cannot be easily assessed.

## VIII. REACTIONNAIRES, INTERVIEWS, AND OBSERVATIONS

### Participant Reactions

In addition to assessing the effects of the alternative programs, the study was also concerned with evaluating the processes and contexts of the programs. The primary sources of data for this aspect of the study were reactionnaire surveys (Appendix I), and informal interviews with participants during the course of the program. The following discussion summarizes the data obtained from these sources.

Participants in both programs rated the program as having between "high" and "very high" priority among other possible public health program alternatives. They also considered the approach of the course as between "reasonable" and "very reasonable" and identified the following aspects of the program as particularly pleasing to them:

- The facts presented were based upon research and the actual experiences of the instructors. Both the information and the sources was regarded as highly credible.
- The style of the presentation was very frank, calm, and factual in contrast to other programs to which many referred.
- The use of the discussion group method.
- The use of handout materials for both preparation and later reference.
- The presentations led to increased knowledge about drugs and made participants want to find out more information. This comment occurred frequently among participants in both groups.

It should be noted that over 35% of the Boise participants and 54% of the Reno participants reported that the course prompted them to engage in some drug-related community activity, other than in their jobs,

Additional pleasing aspects mentioned by the Boise participants were

- The format of the course: TV lectures coupled with group discussions.
- The lectures were very well organized and clear.

Additional pleasing aspects mentioned by the Reno participants were

- The qualifications of the instructors.
- The participation of drug users who contributed to the course content from personal experience.
- The films.

Participants were also asked to identify aspects of the course which were displeasing to them. Comments frequently made by participants in both groups were these:

- Lack of broad participation base in the program. Boise group wanted more young people; Reno more policemen, etc. Both were wanting more of a cross section of the community represented.
- Lack of direction in group discussions. Participants in both groups mention unproductiveness of the group discussions. Steps were subsequently taken to improve this situation in Boise.
- Lack of suggestions regarding prevention as well as treatment programs.
- The undertone of drug permissiveness was frequently mentioned, along with the strongly implied position of the instructors that some drugs, marijuana in particular, should be legalized.

Additional displeasing aspects mentioned frequently by Boise Participants were

- Technical problems with the television picture.
- Viewing conditions: angle of view and generally unsatisfactory room conditions. (Several mentioned smokiness.)
- Dullness of the TV lectures. Several suggested the need for audio-visual embellishments and inserts to break up the monotony of the lectures.

Additional displeasing aspects in Reno were

- Fixed membership of the discussion groups. Many felt rotation of the participants from group to group would be an improvement.
- Assignment of drug users to unique groups. Many felt that rotation of these resource people would be an improvement.
- The presence of a few dominating persons in the discussion groups who monopolize the discussions, particularly some of the vocal, anti-establishment college students who were particularly visible in one or two of the groups.

### Sponsor Interviews

Although sponsor interview data from Reno was very sparse, the following questions were asked and the answers are given in the general order of their frequency of occurrence in the responses:

- What were the most important factors taken into consideration in deciding which courses to offer?
  - Community needs
  - The people we want to reach
  - Probable effectiveness of the course
  - The courses which are available
- What were the decisive factors in selecting the Mind-Affecting Drugs Program?
  - Lack of knowledge on the subject
  - Situation currently being mishandled in the community
  - (Poise) Tapes less costly than live speakers
  - Timeliness of topic
- What were your most troublesome problems before the start of the course?
  - Preparing for the technical and physical aspects of the course
  - Estimating the probable size of the enrollment
  - Arranging for discussion group leaders
- What were your most troublesome problems after the start of the course?
  - (Boise) Arranging seating for optimal viewing of TV
  - (Boise) Arranging for the physical requirements
  - Arranging for the group discussions
- In your judgement, was the course successful?
  - Unanimous Yes.
- Why?
  - Wide variety of occupations represented
  - Changed some people's thinking
  - Interest (and attendance) remained high throughout
  - Participants are being used as resource people to other groups.

### Group Process

Both programs relied heavily upon the effects of group processes to accomplish the cognitive and attitudinal objectives of the course. Inasmuch as the productivity of these group discussions was a subject of some criticism, it is appropriate to examine the variables which affect the productivity of group processes.

According to Reusch (1961), and others, a prime requisite for productivity with respect to attitude change is "openness" on the part of participants in the group - a willingness to express personal feelings. A number of characteristics of any group are related to the willingness of its members to express themselves, i.e. to its productiveness or non-productiveness.

Individuals in groups operating under "productive" modes may be expected to learn more about themselves and others than about the subjects discussed. Individuals in groups operating under "nonproductive" modes may learn more about the subject, but may not be expected to change their attitudes toward it.

In light of the above, the frequently expressed sense of non-productiveness of the discussion groups is more easily explained. In Reno, for example, the total group was randomly divided into five smaller discussion groups, several of which then met in the same large open space. These groups lacked a good measure of the intimacy necessary for "open" interactions among participants; so it took longer than might have otherwise been necessary for group members to get to know one another well enough for personal exchanges.

The Reno groups generally operated in four modes: group-leader dominated, drug-user dominated, cognitive-rational, and warm-personal. The same groups operated under different modes at different times. In general, it would appear that the leaders were unskilled in the management of group processes, four out of five of them being unable to verbalize "goals" of their groups. The one leader who was able to verbalize goals for his group indicated that he had worked with groups before, but that he had not been prepared in any special way for this particular group or the content of the discussions.

The Reno groups differed from the Boise groups in at least one important respect: the presence of drug users. These persons functioned as resource people in the groups and became the focus of group interactions on the first day, largely dominating the exchanges.

Table 9 below summarizes the characteristics of group interaction which were observed to be operating at various times in the various groups of both cities, and which are presumed to have affected the productivity of these groups. It can be seen that the management of group processes to effect attitudinal changes will require a group leader skilled in group processes, rather than one skilled only in the subject matter under discussion.

Table 9

EXAMPLES OF CHARACTERISTICS AFFECTING THE PRODUCTIVENESS  
OF GROUP PROCESSES AS OBSERVED IN  
THE ALTERNATIVE PRESENTATIONS

Productive	Non-productive
1. "Personal" feelings and opinions were expressed.	1. Facts which were already known by group members were expressed.
2. Leader structured an atmosphere in which participants were willing to risk personal opinions on the points discussed by the presentations.	2. Leader allowed one point of view to dominate and did not help equalize the situation.
3. Widely differing opinions were expressed and polarization was allowed to form.	3. Leader allowed a consensus to form and actively suppressed other points of view.
4. Leader dealt with controversial issues which brought out expressions of opposing viewpoints. Acted as mediator to assure that all views had an opportunity for expression.	4. Leader was content with "question and answer" dialogue on non-threatening issues.
5. Challenges to traditional ways of looking at issues were expressed by group members and reinforced by the leader.	5. Leader only reinforced expressions of "traditional" points of view (through expressions or motions of approval).
6. Members discussed positive aspects of moderate drug use.	6. Members discussed extreme use and abuse of drugs and the consequent dangers.
7. Leader cited examples which contradicted the views being expressed.	7. Leader allowed propagandizing by members without citing contradictory examples.

## IX. CONCLUSIONS AND RECOMMENDATIONS

### Summary of Conclusions

1. The data show reliable evidence that participants in both presentations learned from their experience, as measured by the information-about-drugs test, and that the Boise (videotape/seminar) group learned slightly, but reliable more than the Reno ("live" workshop) group. Prior participants also demonstrated significantly greater knowledge than a control group which had not seen either presentation, suggesting that the cognitive effects of the program can be observed more than a year after exposure to the program. The data also show no reliable difference between immediate posttest and posttests given a year after the program, suggesting that no significant proportion of the information learned from the program is lost over time.
2. The data show reliable evidence that the overall attitudes of participants, as measured by the attitudes-toward-drugs scale, changed following the program in the direction advocated by the instructors. No reliable superiority was found, however, favoring either of the groups in this respect. Prior participants also demonstrated attitudes which were significantly closer to those advocated than a control group which had not seen either presentation, suggesting that the attitudinal effects of the program can be observed more than a year after exposure to the program. The data also show however, that the immediate posttests are significantly higher than the delayed posttests given a year after the program, suggesting that while a significant proportion of the altered attitudinal responses is retained over time, a significant proportion may nevertheless be lost. When the attitudinal items were considered as independent measures, each with its own criterion of intended performance, it was shown that the Boise group approached criterion levels on significantly more attitude-measuring items than did the Reno group.
3. The data show reliable systematic differences among the participant groups with respect to occupational composition, professional levels, and age; but no reliable differences were observed in the entering states of knowledge or attitude among the pretested groups, as measured by the instruments developed for the study.
4. Participants in all groups rated the program as having high priority among their choices for continuing education activities, and they considered the general approach of the course reasonable. All groups were especially pleased with the discussion group method and the use of handout materials which could be used for future reference. They were also displeased with the productivity of the discussion groups, the lack of concrete suggestions for treatment and prevention programs, and the undertone of drug permissiveness which pervaded the course. The Boise group especially reported that the televised lectures were clear, and that technical considerations needed more attention. The Reno group was especially pleased with the participation of drug users, and displeased with the static organization of the discussion groups, and their dominance by a few.



### Recommendations

1. In view of the finding that attitudes modified following the program may regress toward former levels over a period of time, CEPH should consider the possibility of follow-up programming for the participants after a year or so focusing minimally on information, and primarily on attitude modification.
2. The study shows that, under some conditions at least, the videotape/seminar format can lead to the acquisition of information and modified attitudes on a par with more costly formats. CEPH should continue to explore the uses of recorded formats such as this one in the interests of achieving more favorable cost/benefit ratios in its program operation.
3. Future uses of television should consider ways of optimizing viewing conditions in terms of angle-of-view, distance from screen, acoustics, technical management, and general atmosphere. Guidelines outlining these requirements should be developed and made available to the local sponsors who make the local arrangements. Efforts should be made to develop in-house, fail-safe video playback systems which may be provided intact to the local coordinators of such programs.
4. In programs where attitude change is a major objective, procedures need to be developed for assuring that discussion group leadership is in skilled hands. In the absence of skilled leaders, CEPH should take upon itself a major responsibility for shaping the performance of unskilled or semi-skilled leaders. Guidelines to local coordinators which might assist in the improved selection of group leaders may be of some help. In any event, those selected to lead groups should be provided with some guidance, perhaps in the form of presessions, or concurrent sessions, or manuals.
5. It is recommended that the CEPH review its overall program evaluation strategy with a view toward developing a more comprehensive approach which might include, in addition to validation of individual offerings, the systematic study of format variables in adult continuing education. Product-testing studies such as this one can only demonstrate if a product accomplished its intended effects, or which of several products accomplished them best under the conditions of the comparisons. But the findings cannot be generalized to other products, or even to replicative presentations of the same products under other conditions. Yet the agency has much to gain from studies which better define the relationships among the format variables which are under its direct control. Within the context of validative studies such as this one, and without adding significantly to the cost, the CEPH might also be conducting one-shot case studies each of which implements a predetermined variation of some important format variable. The strategy would need to be implemented over a long period of time and across a large number of programs in order to benefit from

its cumulative effects. However, the program of the CEPH seems ideally suited for this type of effort. While the results in the short term may be no different than what is now accruing from current practice, the long term result should be the emergence of some generalizable principles of use in predicting the effects of various format alternatives on the behavior of adult continuing education students.

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## **APPENDICES**

## APPENDIX A

### 40-ITEM INFORMATION-ABOUT-DRUGS TEST

#### DRUG ABUSE INVENTORY

#### Instructions:

This is a test about drug use and abuse. Choose the best answer for each question and mark an X on the appropriate letter on the answer sheet. More than one choice might appear to be correct. Mark the one you think is best. If you are not sure of an answer go ahead and guess.

1. \* Hashish is
  - a. finely ground marijuana.
  - b. Acapulco gold.
  - c. gummy resin of the cannabis sativa plant.
  - d. chewing tobacco.
2. -Physical and psychological damage done by amphetamines outweigh that done by marijuana and LSD.
  - a. True
  - b. False
4. -A "bad trip" is primarily
  - a. a sign of mental deterioration.
  - b. a problem for people over 30.
  - c. related to blocked vision when under the influence of LSD.
  - d. a panic reaction.
6. -Methadone costs a dollar a day and can be used
  - a. orally.
  - b. to block heroin effects.
  - c. as a maintenance drug.
  - d. all of the above.
7. - Pharmacologically, marijuana is
  - a. like opium.
  - b. a narcotic.
  - c. like nicotine.
  - d. not a narcotic.
8. -"Narcotics" are drugs that are
  - a. most abused.
  - b. derived from opium
  - c. used by doctors to keep housewives going.
  - d. used by doctors in most medical cases.

\* Original item number as it appeared in 61-item test

9. -Because adults have given misinformation about "youth drugs" and have condemned them while protecting their "social" drugs (alcohol and cigarettes)
- a. youth doesn't trust "drug educators".
  - b. adults are known as hypocrites.
  - c. people who give accurate information are accused of being "pro-drug".
  - d. all of the above.
12. -A youthful drug sub-culture has emerged and
- a. society is irreparably split apart.
  - b. its members take care of their own.
  - c. we'll never regain control again.
  - d. more kids are frightened of their peers.
13. -Physical dependence is really dependence on a chemical for
- A. proper metabolic functioning.
  - b. rapid use of physical energy.
  - c. warming the body.
  - d. attaining a good mental outlook.
14. -The "active ingredient" in marijuana is
- a. H.T.C.
  - b. T.C.P.
  - c. T.H.C.
  - d. ground up.
15. -Synthetic marijuana is available.
- a. True
  - b. False
17. -Most of what young people hear from adults (parents, schools), about drugs is a lie.
- a. True
  - b. False
18. -Much information through official channels has been distrusted by users because it
- a. is motivated by fear.
  - b. has no legal basis.
  - c. is made up by people over thirty.
  - d. is contrary to their experience.
20. -Before progress in "narcotic" treatment can be done
- a. treatment must cease to frighten addicts.
  - b. treatment must reduce the addicts need for drugs.
  - c. treatment must be made in an institutionalized setting.
  - d. all of the above.
  - e. a and b above.

22. -Drug use is a social act and therefore the style and kind of drug use depends a great deal
- a. on who uses it and where it is used.
  - b. what drug is used.
  - c. the form in which it is taken.
  - d. b and c above.
24. -Amphetamine
- a. attracts people who have personality disorders.
  - b. helps educationally handicapped kids study.
  - c. helps college students get through final exams.
  - d. all of the above.
25. -LSD doesn't cause any more chromosome damage than
- a. normal amounts of X-ray.
  - b. coffee or tea.
  - c. the flu.
  - d. a and c.
27. -The number one drug abuse problem is
- a. LSD.
  - b. heroin.
  - c. alcohol.
  - d. marijuana.
28. -"Methadrine babies"
- a. are deformed.
  - b. are blind at birth.
  - c. don't sleep well.
  - d. are addicted.
29. -LSD reactions are more influenced by environmental conditions than other drug reactions.
- a. True
  - b. False
31. -The "insanity, murder, and brain damage" connected with marijuana in the 1930's and 1940's
- a. is true.
  - b. may be true.
  - c. probably is false.
  - d. is false.
35. -The major toxic reaction to marijuana overdose is
- a. psychotic.
  - b. neurotic.
  - c. nausea.
  - d. headache



38. -The primary reason very little communication goes on about marijuana across the "generation gap" is because of
- a. lack of knowledge about it.
  - b. older people are afraid they will have to quit smoking.
  - c. they don't talk to each other anyway.
  - d. the polarization of opinions of both parties.
39. -Social substitution provided by AA and Synonon inhibits the basic physical need for narcotics.
- a. True
  - b. False
40. -Marijuana does not increase your appetite.
- a. True
  - b. False
42. -Altered perceptions such as seeing your body on fire are not frightening as long as you know it's part of the drug experience and not real.
- a. True
  - b. False
43. -"Grass" has
- a. a very high abuse potential.
  - b. a high abuse potential.
  - c. a medium abuse potential.
  - d. a relatively low abuse potential.
46. -Abolishing drugs will not work because
- a. our culture is committed to drug use.
  - b. humans seek out substances which meet unmet needs.
  - c. control depends on adequate education.
  - d. all of the above.
47. -Violent behaviors resulting in rapes and murders are most often caused by
- a. alcohol.
  - b. marijuana.
  - c. codeine.
  - d. amphetamines.
48. -Marijuana can be eaten, drunk, or smoked.
- a. True
  - b. False
49. -Why are drugs being more widely used in our society?
- a. People aren't kept busy enough.
  - b. People are too affluent and can afford it.
  - c. People in a materialistic society also need spiritual experiences.
  - d. none of the above.

51. -If given a free choice who will choose drugs most often?  
a. Everyone.  
b. Those who have never had them.  
c. Thrill-seekers.  
d. Neurotics.
52. -The "narcotic" pattern of addiction is seen primarily  
a. on campuses where hippies are admitted.  
b. at Berkeley, San Francisco State, Columbia, and Harvard.  
c. in ghettos.  
d. all of the above.
54. -During the "action phase" of a "speed cycle"  
a. there is a tendency toward violence.  
b. the person is excitable and euphoric.  
c. there is a loss of appetite and sleep.  
d. all of the above.
55. -An advantage to being a "pothead" versus being an alcoholic is  
a. pot costs less.  
b. you don't become a compulsive smoker.  
c. you don't get organic damage.  
d. you don't become intoxicated.
56. -The major problem with marijuana and LSD is that the  
a. users personality decompensates.  
b. number of people using them is growing.  
c. users drop out of society.  
d. users never recover from the physical damage.
58. -Some positive effects of LSD and mescaline are  
a. better digestion and no ulcers.  
b. the enhancement of creativity and religious experience.  
c. clearer regard for a normal state of mind.  
d. escape from reality.
59. -Meditation  
a. is for mystics.  
b. is good therapy.  
c. balances ones needs.  
d. both b and c.
60. -Synanon members  
a. are cured addicts who still occasionally need help.  
b. don't pay taxes in exchange for treatment.  
c. must make a total commitment to the Synanon environment.  
d. reject normal society.
61. -The primary and most troublesome symptom of amphetamine psychosis is  
a. paranoia.  
b. hallucination.  
c. physical illness.  
d. harm to himself.

## APPENDIX B

### ITEMS ANSWERED CORRECTLY BY MORE THAN 75% OF PARTICIPANTS ON PRETEST DRUG ABUSE INVENTORY

#### Instructions:

This is a test about drug use and abuse. Choose the best answer for each question and mark an X on the appropriate letter on the answer sheet. More than one choice might appear to be correct. Mark the one you think is best. If you are not sure of an answer go ahead and guess.

- What drug has taken on the status of alcohol during prohibition?
  - a. marijuana
  - b. heroin
  - c. LSD
  - d. cocaine
  
- LSD was first synthesized in 1938, but not noted as a psychedelic until 1943.
  - a. True
  - b. False
  
- Alcohol is an excellent temporary anxiety depressant.
  - a. True
  - b. False
  
- Current research shows no organic damage associated with LSD.
  - a. True
  - b. False
  
- Alcohol is the drug of "warriors". Marijuana is the drug of "contemplative people".
  - a. True
  - b. False
  
- The biggest drug abuse problem facing health workers today is
  - a. the hypocrisy of excusing the use of some drugs while trying to eliminate use of others.
  - b. trying to distinguish between legal drugs and illegal ones.
  - c. treating amphetamine users when alcoholics can legally get drunk.
  - d. a, b, and c together.

- Two important factors in drug use are the person's personality and the setting in which it is taken. A third factor is
  - a. others expectations for him.
  - b. what time of day it is.
  - c. his expectation for the effects of the drug.
  - d. race.
  
- The best way for public health workers to combat radical "pro" and "con" viewpoints on drugs is
  - a. to fight both vigorously.
  - b. pick a side and stick to it.
  - c. to take the side of whoever you are talking to about drugs.
  - d. to give honest information to all parties no matter how uncomfortable it makes you.
  
- Control of wanted drugs leads to
  - a. an increase in suicides.
  - b. more neurotic people.
  - c. a black market.
  - d. a reduction of mental hospital admissions.
  
- Due to their physical makeup some people can consume much larger quantities of alcohol than others without a sedative effect.
  - a. True
  - b. False
  
- Even though LSD was found not to create a true psychotic state and has been used in the treatment of alcoholism, most of what is generally known about it is based on
  - a. psychedelic cult uses as told by the mass media.
  - b. pictures of Haight Ashbury.
  - c. Russian charges that we are a decadent society.
  - d. Aldous Huxley's book.
  
- Young people who take amphetamines are merely mimicing a common phenomenon in our society.
  - a. True
  - b. False
  
- The amount of external stress a person is under determines whether he uses drugs.
  - a. True
  - b. False
  
- Consequences of drug abuse depend upon
  - a. the health of the abuser
  - b. the attitude of the abuser.
  - c. the social usefulness of the drug.
  - d. the properties of the drug.

- Amphetamines are widely used in our society in the form of
  - a. aspirin
  - b. chewing gum
  - c. diet pills
  - d. soft drinks
- The purpose of the course is to study use and abuse of psycho-active drugs. Abusive use of a drug causes deterioration in a person's
  - a. attitudes toward society.
  - b. economic and social function.
  - c. schedule of activities.
  - d. none of the above.
- Caffeine is a stimulant which can be habit forming and cause
  - a. "nervousness".
  - b. brain hemorrhage.
  - c. progression to more dangerous drugs.
  - d. all of the above.
- "Hidden addicts" are
  - a. people in ghettos where drugs are readily obtainable.
  - b. "social" drinkers.
  - c. crime syndicate members.
  - d. people using legally prescribed drugs.
- The dominant culture can hold onto its drugs and convince young people to throw away theirs.
  - a. True
  - b. False
- Tolerance to "narcotics" builds up, fear of withdrawal heightens, and the cost of the drug abusers habit increases. This leads to
  - a. more crime to pay for the narcotics
  - b. a complete mental breakdown.
  - c. incarceration.
  - d. the user turning himself in.
- "Speed" is the slang term for
  - a. marijuana.
  - b. LSD.
  - c. THC
  - d. amphetamine.
- Violence from heroin addiction is caused by the desire to get the drug while violence from amphetamines is caused by the drug itself.
  - a. True
  - b. False

- "Tolerance" can be built up for some drugs. The main effect of this phenomenon is to
  - a. increase the effect of the drug.
  - b. increase the amount taken to get an effect.
  - c. make the person aware of what he is doing.
  - d. stop the "speed cycle".
- The adult population generally insists that the bad side of drugs such as marijuana be publicized. In effect they are saying
  - a. we have a right to our drugs but you don't to yours.
  - b. alcohol is no good.
  - c. cigarettes are bad for you.
  - d. caffeine is a stimulant.
- Women who are on drugs should not get pregnant. They should
  - a. use birth control devices.
  - b. have sterilization available as an option.
  - c. not have intercourse.
  - d. a and b above.
- In our society, you can kill yourself with alcohol, cigarettes, or diet pills and this would not be illegal drug abuse.
  - a. True
  - b. False
- Physical dependency and withdrawal symptoms do not occur when you use barbiturates.
  - a. True
  - b. False
- A "splatter effect" is caused by shooting drugs directly into veins.
  - a. True
  - b. False
- The old cult religions are beginning to thrive again
  - a. because of their rational character.
  - b. because they use more primitive rituals.
  - c. because incense and strange music are used in their ceremonies.
  - d. because of their mystical quality.
- Who keeps the price of heroin high?
  - a. the federal government.
  - b. the FBI
  - c. crime syndicated
  - d. local pushers
- When drugs are prohibited
  - a. little change takes place in society.
  - b. more people drive faster than the speed limit.
  - c. "respectable people" become criminals.
  - d. F. Scott Fitzgerald will become popular again.

- "Bad trips" on LSD are more likely to produce long term psychological scars than regular "highs" on LSD.

- a. True
- b. False

- Rather than eliminate all drug use, young people want

- a. freedom for everyone to engage in excess use of any drug.
- b. drug education programs which teach proper use of drugs.
- c. adults to give up alcohol, cigarettes, and coffee.
- d. a and c above.

- We know that the percentage of high school students who have tried marijuana or LSD or both is at least

- a. 1-12%
- b. 15-20%
- c. 30-45%
- d. 50-67%

- Illegal substances can be controlled but not eliminated because

- a. the market for them cannot be eliminated.
- b. the mafia cannot be eliminated.
- c. peoples' minds can't be changed.
- d. law enforcement is not perfect.

- What drug can be administered to ameliorate heroin addiction?

- a. marijuana
- b. Andeas seed
- c. Methadone
- d. poppy petal (crushed)

- Reoccurrence of the LSD experience is called

- a. the flutter effect.
- b. the "now" effect.
- c. a "flashback" phenomenon.
- d. a drug "syndrome".

- The chances of becoming an alcoholic do not vary with one's profession.

- a. True
- b. False

- LSD was first used

- a. by sub-cultures such as the beatniks.
- b. by psychotics in order to reach a "normal" state of mind.
- c. to induce a "psychotic" state for research purposes.
- d. by rock and roll band groups.

# APPENDIX C

## DISTRIBUTION OF RAW SCORES ON INFORMATION TESTS

X	Boise		Reno		P.P.
	Pre	Post	Pre	Post	Post Only
36					2
35					0
34				1	2
33					3
32					2
31		3			3
30				3	6
29		2		2	3
28			1	4	8
27	1	3		5	7
26	1		1	1	6
25		2	1	1	6
24			1	1	1
23	1		3	3	1
22		2	1	1	6
21			2	1	5
20		1	2	1	0
19			2		2
18	2		2		4
17	2		4		2
16	1		1	1	1
15					3
14	1		3		0
13	1				2
12	1		2		0
11					
10	2			1	
	N=13 $\bar{X}=17.00$	N=13 $\bar{X}=26.61$	N=26 $\bar{X}=18.84$	N=26 $\bar{X}=25.46$	N=75 $\bar{X}=25.29$



# APPENDIX D

## EFFECTIVENESS SCORES OF INDIVIDUAL INFORMATION TEST ITEMS

Content Class	Item	Boise (N=13)			Reno (N=26)			Diff. of Effect <sup>3</sup>
		Pre <sup>1</sup>	Post <sup>1</sup>	Effect <sup>2</sup>	Pre <sup>1</sup>	Post <sup>1</sup>	Effect <sup>2</sup>	
II	1	6	12	.86	14	20	.50	.36
I	2	7	13	1.00	13	25	.92	.08
II	4	8	13	1.00	15	24	.82	.18
IV	6	9	9	-0-	15	25	.91	-.91
II	7	5	10	.63	16	20	.40	.23
II	8	3	10	.70	11	16	.33	.37
V	9	9	11	.50	20	22	.33	.17
V	12	3	6	.30	12	14	.14	.16
II	13	8	12	.80	15	18	.27	.53
II	14	3	11	.80	10	15	.31	.49
VI	15	3	7	.40	11	18	.47	-.07
V	17	6	9	.43	10	13	.19	.24
IV	18	7	9	.33	20	22	.33	-0-
IV	20	6	9	.43	23	17	-.26	.69
III	22	7	8	.17	12	16	.29	-.12
III	24	6	8	.29	9	16	.41	-.12
I	25	4	5	.11	4	13	.41	-.30
III	27	9	12	.75	13	22	.69	.06
I	28	1	10	.75	3	4	.04	.71
I	29	10	13	1.00	15	23	.73	.27
V	31	4	5	.11	10	18	.50	-.39
I	35	4	8	.44	16	13	-.19	.63
V	38	7	10	.50	15	18	.27	.23
IV	39	9	10	.25	19	18	-.05	.30
I	40	2	7	.45	6	13	.35	.10
IV	42	2	7	.45	6	10	.20	.25
I	43	5	10	.63	8	10	.11	.52
IV	46	10	9	-.10	18	21	.38	-.48
I	47	5	10	.38	5	20	.71	-.33
VI	48	7	12	.83	17	21	.44	.39
V	49	4	7	.33	5	12	.33	-0-
VI	51	5	8	.38	14	11	.58	-.20
V	52	6	5	-.17	8	10	.11	-.28
I	54	4	10	.67	15	20	.45	.22
I	55	4	7	.33	15	17	.18	.15
III	56	1	7	.50	8	6	-.25	.75
II	58	5	6	.13	4	3	-.25	.38
IV	59	8	10	.40	18	18	-0-	.40
IV	60	3	6	.30	19	24	.71	-.41
I	61	5	8	.38	10	16	.38	-0-

<sup>1</sup> Entries show number of persons responding correctly to each item.

<sup>2</sup> Entries show percent change of possible change in the observed direction.

<sup>3</sup> Effect<sub>diff.</sub> = Effect<sub>Boise</sub> - Effect<sub>Reno</sub>

APPENDIX E

67-ITEM ATTITUDES-TOWARD-DRUGS SCALE

DRUG ABUSE INVENTORY

Instructions:

Following are a number of statements which indicate people's feelings about the subject of drugs. On your answer sheet rate how much you agree or disagree with each statement by marking the appropriate number.

Disagree								Strongly agree
	1	2	3	4	5	6	7	

Remember to mark a response for each statement. If you have any questions please ask. Begin now.

---

- \* 1. Young people can trust me to give accurate information about drugs.
- \* 2. I can talk to pot smokers in language they'll understand.
- 3. Institutionalizing marijuana smokers is absurd.
- \* 4. Young people who "see things the way they are" don't like what they see.
- \* 5. If you smoke nutmeg you will have a psychedelic experience.
- \*\* 6. I'm afraid of people who smoke marijuana.
- 7. I've taken an illegal drug at least once.
- 8. Marijuana is helpful to most people who use it.
- 9. A person who smokes pot once a week is the same type of person who takes LSD.
- \*\* 10. Society's fear of drugs is hampering proper treatment for those who need it.
- \* 11. People who smoke marijuana don't bother me.

---

\* Asterisked items are the 40 selected for analysis of attitudes-toward-drugs.

\*\* Double-asterisked items are the ten "key" items discussed in the narrative.

Disagree                      Strongly agree  
1 2 3 4 5 6 7

- 
12. One kind of drug is just as bad as another.
  13. I wouldn't feel uncomfortable when counseling addicts.
  14. Some legal drugs are more harmful than helpful.
  - \* 15. A lot of violent crime has resulted because of the widespread use of marijuana.
  - \* 16. A supportive rather than punitive approach to drug treatment will increase the number of people being cured.
  17. Most illegal drug users commit crime in order to pay pushers for the drugs.
  - \* 18. If the relatively harmless drugs were made available to people, there would be less addiction to the more harmful drugs.
  - \* 19. Drug users want more spiritual value in their lives.
  - \* 20. There is not enough loving and giving in America to please young people.
  21. I know how to find drug users in my community.
  22. Smoking a lot of cigarettes is just as bad for you as smoking pot twice a week.
  23. Some illegal drugs are helpful and not harmful.
  24. If a person has a "religious experience" today, people would think he was crazy.
  25. The odds are against marijuana smoking leading to heroin addiction.
  26. Users of illegal drugs are "dope addicts".
  27. If a drug can be advertized on TV, it means it's less dangerous than marijuana.
  - \*\* 28. Dosage and type of drug used are crucial factors in distinguishing types of users.
  - \*\* 29. I understand people who use drugs.
  - \*\* 30. A person can take some illegal drugs periodically without getting hooked.

Disagree                      Strongly agree  
1 2 3 4 5 6 7

- 
31. I'm not afraid of drug users.
- \* 32. Any body who knowingly has possession of an illegal drug is dangerous.
- \* 33. There isn't much difference between people who smoke pot and people who use heroin:
- \*\* 34. I'm aware of what's happening with drugs.
35. Only "nuts" find illegal drugs appealing.
- \* 36. Cinnamon is an Asian psychedelic drug.
- \*\* 37. Drugs help many people live more satisfying lives.
- \* 38. Ghettos are filled with crime because of drug abuse.
- \* 39. Society is afraid of some drugs because it hasn't traditionally used them.
- \* 40. For those whose compulsive use of drugs has had a debilitating effect, treatment should include maintenance on a drug.
41. Punishment can be eliminated as a method of curing drug abuse.
- \* 42. Some illegal drugs are less harmful than some legal drugs.
43. Confinement is the best way we have of dealing with narcotic addicts.
- \* 44. Those who think marijuana is helpful to them should have the right to use it.
- \* 45. Caffeine and nicotine are mind modifying drugs.
46. Most hippies are prone to commit crimes like robbery, theft, and assault.
47. Young people will find out that I know a lot about drugs.
48. People who use heroin should be locked up.
49. Life imprisonment or death should be the penalty for addicts who push dope to get money to feed their habit.
- \* 50. I could be friends with some one who uses LSD.
51. Potheads, pill poppers, "speed" takers, and heroin addicts are all from the same mold.

Disagree                      Strongly agree  
1 2 3 4 5 6 7

- 
- \*\* 52. There are methods of treatment available which minimize the danger of criminality and yet allow the person to maintain contact with society.
53. I will try to inform myself more about the drug problem.
- \* 54. Some human needs outweigh legal and social requirements.
55. Drugs which are not physically harmful should be made available to users by prescription.
- \* 56. Even compulsive users of marijuana won't become addicted to more debilitating drugs.
- \* 57. Drugs are aids to adjustment in our society.
58. Information about the "good side" of marijuana should be made available.
- \* 59. Many Americans are drug users and don't realize it.
60. I sometimes feel as though a psychedelic drug would be good for me.
- \* 61. Many drug users are legally criminals but socially respected citizens.
- \* 62. We don't think of alcohol, nicotine, or caffeine as drugs.
63. I'm more interested in the drug problem than in other social problems.
- \* 64. Whisky is a sedative.
- \*\* 65. Marijuana and LSD should be legalized.
66. There is no cure for addiction to opium derivatives.
- \*\* 67. Cigarette smokers, marijuana smokers, coffee drinkers, and diet pill takers are all drug users.

# APPENDIX F

## UNGROUPED DISTRIBUTION OF RAW AND EFFECTIVENESS SCORES ON ATTITUDE SCALES

BOISE (N = 13)				RENO (N = 24)				PRIOR PARTICIPANTS(N=66)			
S	Pre-test	Post-test	% Effect	S	Pre-test	Post-test	% Effect	S	Post-test	S	Post-test
1	166	184	15.6	1	195	257	72.9	1	223	34	145
2	216	246	46.8	2	156	196	32.2	2	168	35	168
3	202	239	47.4	3	178	207	28.4	3	214	36	178
4	111	192	47.9	4	114	145	18.6	4	208	37	231
5	173	236	58.7	5	200	233	41.2	5	209	38	249
6	141	139	-1.4	6	166	256	78.9	6	213	39	210
7	170	212	38.1	7	148	199	39.3	7	217	40	217
8	180	218	38.0	8	148	224	57.5	8	195	41	235
9	148	195	35.6	9	146	192	34.5	9	225	42	194
10	174	255	76.4	10	172	182	9.2	10	165	43	195
11	166	196	25.4	11	171	253	75.2	11	194	44	244
12	147	204	42.8	12	123	190	42.6	12	178	45	219
13	169	223	48.6	13	171	195	22.0	13	142	46	210
				14	139	209	49.6	14	145	47	194
				15	111	177	39.0	15	217	48	190
				16	180	261	81.0	16	183	49	183
				17	188	257	75.0	17	223	50	174
				18	190	228	42.2	18	185	51	174
				19	215	242	41.5	19	230	52	231
				20	141	205	46.4	20	181	53	210
				21	174	199	23.5	21	167	54	241
				22	154	219	51.5	22	188	55	216
				23	197	215	21.6	23	181	56	187
				24	233	247	29.7	24	158	57	229
								25	177	58	149
								26	198	59	208
								27	210	60	223
								28	169	61	229
								29	162	62	245
								30	160	63	222
								31	159	64	210
								32	192	65	192
								33	176	66	193
Mean	166.4	210.7	40.0		167.1	216.1	43.9				197.1

# APPENDIX G

## FREQUENCY OF RESPONSES TO "KEY" ATTITUDE ITEMS ON PRE AND POSTTESTS

	ITEM 6					ITEM 10					ITEM 28					ITEM 29				
X	Pre	Pos	Pre	Pos	Pos	Pre	Pos	Pre	Pos	Pos	Pre	Pos	Pre	Pos	Pos	Pre	Pos	Pre	Pos	Pos
7	8	7	10	17	44	4	8	9	17	40	5	6	9	14	37	0	0	0	1	4
6	1	3	5	4	9	2	2	4	1	12	0	3	1	1	16	0	3	0	3	8
5	1	2	0	0	0	1	3	3	3	5	2	2	1	5	5	2	1	3	7	15
4	2	1	2	0	0	2	0	4	0	0	3	1	6	2	3	4	3	5	6	17
3	0	0	2	0	2	0	0	0	1	2	0	0	3	0	0	2	2	2	1	5
2	0	0	2	3	4	2	0	1	0	2	3	0	2	1	2	0	1	4	2	9
1	1	0	3	0	6	1	0	3	2	4	0	1	2	1	3	5	3	9	3	7
f	13	13	24	24	65	12	13	24	24	65	13	13	24	24	66	13	13	23	23	65
	Boise		Reno		PP	Boise		Reno		PP	Boise		Reno		PP	Boise		Reno		PP

	ITEM 30					ITEM 34					ITEM 37					ITEM 52				
X	Pre	Pos	Pre	Pos	Pos	Pre	Pos	Pre	Pos	Pos	Pre	Pos	Pre	Pos	Pos	Pre	Pos	Pre	Pos	Pos
7	2	7	5	12	30	1	5	3	8	12	3	3	3	10	11	1	8	2	15	36
6	3	2	4	7	11	2	3	4	4	20	3	3	0	5	11	3	2	4	3	15
5	5	2	5	2	11	3	2	2	6	19	2	3	2	3	14	6	1	6	4	9
4	1	1	7	2	5	1	1	7	3	12	1	0	6	0	10	1	2	10	1	4
3	0	0	2	0	2	1	1	3	2	1	0	0	2	1	5	0	0	2	0	0
2	1	1	1	0	4	2	0	1	1	0	1	1	2	2	4	0	0	0	0	1
1	0	0	0	1	3	3	1	4	0	2	3	3	9	3	11	1	0	0	1	0
f	13	13	24	24	66	13	13	24	24	66	13	13	24	24	66	12	13	24	24	65
	Boise		Reno		PP	Boise		Reno		PP	Boise		Reno		PP	Boise		Reno		PP

	ITEM 65						ITEM 67				
X	Pre	Pos	Pre	Pos	Pcs	Pre	Pos	Pre	Pos	Pos	
7	0	1	0	0	5	9	11	13	20	50	
6	0	2	0	3	6	0	0	5	2	9	
5	0	2	0	1	3	1	0	1	0	3	
4	1	0	1	1	6	1	1	0	1	2	
3	0	1	0	1	7	0	0	1	1	1	
2	0	0	0	1	5	0	0	0	0	1	
1	12	7	22	16	33	2	1	4	0	0	
f	13	13	23	23	65	13	13	24	24	66	
	Boise		Reno		PP	Boise		Reno		PP	

# APPENDIX H

## PROPORTION OF PARTICIPANTS WHOSE RESPONSES EQUAL OR EXCEED THE AVERAGE RESPONSE OF THE INSTRUCTORS ON EACH ITEM

Item	Average Instructor Rating*	BOISE		RENO		PRIOR PART, Delayed
		Pretest	Posttest	Pretest	Posttest	Posttest
1	7	.38	.46	-0-	-0-	.30
2	6.5	.08	.08	.13	.13	.14
4	5	.69	.92	.50	.50	.79
5	3.5	.31	.85	.46	.83	.56
6	4	.92	1.00	.67	.88	.80
10	7	.31	.62	-0-	-0-	.61
11	7	.08	.23	-0-	-0-	.24
15	4	.62	.92	.58	.88	.91
16	6.5	.46	.46	.29	.58	.45
18	4.5	.38	.23	.13	.38	.30
19	6	.15	.23	.04	.21	.23
20	6.5	.15	.46	.17	.54	.18
22	7	.08	.31	-0-	-0-	.27
26	6.5	.46	.63	.67	.54	.55
27	4	.92	1.00	.83	.83	.86
28	7	.38	.46	-0-	-0-	.56
29	5.5	-0-	.23	-0-	.21	.18
30	7	.15	.46	-0-	-0-	.45
32	7	.38	.77	-0-	-0-	.48
33	7	.38	.85	-0-	-0-	.71
34	5.5	.23	.62	.29	.38	.52
36	3.5	.46	.77	.38	.92	.45
37	4	.69	.77	.21	.75	.70
38	5.5	.15	.23	.17	.58	.20
39	7	.23	.15	-0-	-0-	.36
40	4	.62	.77	.29	.71	.59
42	7	.23	.62	-0-	-0-	.41
44	6.5	.15	.08	-0-	.21	.14
45	7	.46	.38	-0-	-0-	.30
50	7	.31	.54	-0-	-0-	.33
52	7	.08	.62	-0-	-0-	.53
54	7	.23	.54	-0-	-0-	.30
56	2.5	.31	.31	.42	.54	.64
57	6	.15	.46	.17	.46	.42
59	7	.46	.69	-0-	-0-	.71
61	7	.23	.54	-0-	-0-	.56
62	6	.23	.69	.33	.58	.53
64	7	.31	.46	-0-	-0-	.50
65	5.5	-0-	.23	-0-	.13	.17
67	7	.69	.85	-0-	-0-	.76

\* Corrected for polarity



APPENDIX I

Last 4 digits  
of phone number \_\_\_\_\_

REACTIONNAIRES

A

1. People have told us that the course has changed their outlook on drug use and abuse in many different ways. List briefly how it has changed yours.

1.

2.

3.

4.

2. Has the course prompted you to engage in any community activity, other than your job, which relates to drug use or users?

Yes \_\_\_\_\_

No \_\_\_\_\_

If yes, briefly tell what and why. If no, tell why.

1. Some people have said that the course made them want to find out more about drug use and abuse. Has it made you want to?

Yes \_\_\_\_\_ No \_\_\_\_\_

Please list some things you could do to get more information.

1.

2.

3.

4.

5.

If yes, please list what you have done since the course began in order to get more information.

1.

2.

3.

4.

5.

Last 4 digits of  
phone number \_\_\_\_\_

C

1. If you had a free choice of community related courses, what priority would you give Mind Affecting Drugs? (circle one)

Very High      High      Medium      Low      Very Low

2. Please list.

Age \_\_\_\_\_

Occupation \_\_\_\_\_

How many children do you have? \_\_\_\_\_

What are their ages? \_\_\_\_\_

3. Is the "approach" to drug use and abuse of Mind Affecting Drugs reasonable? (circle one)

Very Reasonable      Reasonable      Unreasonable      Very Unreasonable

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